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-RESEARCH ARTICLE-

SAUDI ARABIA'S NUCLEAR ENERGY PROGRAM: CHALLENGES AND CONCERNS IN THE US-SAUDI ARABIA NUCLEAR COOPERATION NEGOTIATIONS

Çiğdem PEKAR[1]

Abstract

The Kingdom of Saudi Arabia has long been interested in nuclear technology and working towards developing the country's nuclear energy infrastructure and nuclear legal framework. In view of recent advancements in Saudi nuclear energy, it is apparent that Saudi Arabia intends to pursue its nuclear energy program with the assistance of nuclear cooperation agreements. So far, the Kingdom has concluded several nuclear cooperation agreements with various foreign governments in order to advance its nuclear energy program. Although the United States (the US) and Saudi Arabia has not concluded a nuclear cooperation yet, the negotiations are currently underway.

This study focuses on the Kingdom's nuclear energy program particularly focusing on the challenging issues in the nuclear cooperation negotiations with the US. It puts that the two countries has not been successful to conclude a "nuclear cooperation agreement" ("123 Agreement") due to several challenges and concerns. Major challenging issues are originating from the US insistence on its stringent conditions including restrictions on enrichment and reprocessing activities ("gold standard") and Saudi implementation of the International Atomic Energy Agency's (IAEA) Additional Protocol (AP). The study first provides a short overview on the Saudi national atomic energy project and then focuses on the US provisions to conclude 123 agreements with other states. In the light of the US-Saudi nuclear negotiations, the study examines Washington's demand for additional nonproliferation requirements and international concerns regarding the Saudi nuclear program. It concludes that due to ongoing disagreements on these two additional conditions and other concerns including Saudis possible covert intents, regional proliferation risks and nuclear security threats, nuclear cooperation between the two countries has remained at a low level.

Keywords: *Saudi Arabia, The US, Nuclear Cooperation, Enrichment and Reprocessing, Additional Protocol*

JEL Codes: *F5, K3, Q4*
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SUUDİ ARABİSTAN'IN NÜKLEER EDERJİ PROGRAMI: ABD-SUUDİ ARABİSTAN NÜKLEER İŞBİRLİĞİ MÜZAKERELERİNDEKİ ZORLUKLAR VE ENDİŞELER[2]

Öz

Suudi Arabistan Krallığı uzun zamandır nükleer teknolojiye ilgi duymakta ve ülkenin nükleer enerji altyapısını ve nükleer yasal çerçevesini geliştirmek için çalışmaktadır. Suudi nükleer enerjisindeki son gelişmeler göz önüne alındığında, Suudi Arabistan'ın nükleer enerji programını nükleer işbirliği anlaşmalarının yardımıyla sürdürme niyetinde olduğu açıktır. Krallık bugüne kadar nükleer enerji programını ilerletmek için çeşitli yabancı hükümetlerle çok sayıda nükleer işbirliği anlaşması imzalamıştır. Amerika Birleşik Devletleri (ABD) ve Suudi Arabistan arasında henüz bir nükleer işbirliği anlaşması imzalanmamış olsa da müzakereler halen devam etmektedir.

Bu çalışma, Krallığın yürütmekte olduğu nükleer enerji programına, ABD ile yürütülen nükleer işbirliği müzakerelerinde ortaya çıkan zorluklar bağlamında odaklanmaktadır. İki ülkenin çeşitli zorlayıcı konular ve endişeler nedeniyle şimdiye kadar bir "nükleer işbirliği anlaşması" ("123 Anlaşması") sonuçlandırmada başarız olduğunu ortaya koymaktadır. ABD-Suudi nükleer işbirliği müzakerelerinde karşılaşılan başlıca zorlayıcı konular, ABD'nin Suudilerin zenginleştirme ve yeniden işleme faaliyetlerini kısıtlamak istemesi ve Uluslararası Atom Enerjisi Ajansı'nın (UAEA) Ek Protokolünün Suudilerce kabulünde ısrarcı olmasıdır. Çalışma, öncelikle Suudi Arabistan tarafından başlatılan ulusal atom enerjisi projesine odaklanmakta, ardından ABD'nin diğer devletlerle nükleer işbirliğine gitmesini düzenleyen ulusal kurallara odaklanmaktadır. ABD-Suudi nükleer müzakereleri ışığında çalışma, Washington'un nükleer yayılmanın önlenmesine ilişkin ek tedbir taleplerini ve Suudi nükleer programına ilişkin uluslararası endişeleri incelemektedir. Çalışma, ek tedbirler üzerinde süregelen anlaşmazlıklar ve Suudilerin muhtemel gizli niyetleri, bölgesel nükleer silahlanma riskleri ve nükleer emniyet tehditleri gibi konulardaki endişeler nedeniyle, iki ülke arasındaki nükleer işbirliğinin düşük seviyede kaldığı sonucuna varmaktadır.

Anahtar Kelimeler: *Suudi Arabistan, ABD, Nükleer İşbirliği, Zenginleştirme ve Yeniden İşleme, Ek Protokol*

JEL Kodları: *F5, K3, Q4*

"Bu çalışma Araştırma ve Yayın Etiğine uygun olarak hazırlanmıştır."

1. INTRODUCTION

By introducing alternative energy sources into its energy mix, the Kingdom of Saudi Arabia has been expanding its efforts to fulfill its growing energy demands and lessen the country's reliance on fossil fuels. In this regard, nuclear energy is a significant alternative energy source that can help generate electricity. To this end, on July 24, 2017, the Saudi government launched the Saudi National Atomic Energy Project (SNAEP) under the roof of King Abdullah City for Atomic and Renewable Energy (KACARE). It is stated by the government that the primary goal of the Project is to

[2] Genişletilmiş Türkçe özet makalenin sonunda yer almaktadır.

incorporate peaceful nuclear energy into the national energy mix and contribute to the achievement of Saudi Vision 2030 (IAEA, 2023:5). According to official declarations, the main reason for the proposed building of nuclear reactors within the framework of this Project is the Kingdom's aim of meeting the increasing energy needs with nuclear energy, reducing dependence on fossil resources, and using nuclear reactors for the process of "purifying" sea water from salt called "desalination (KAGARE). Saudi Arabia has been working to strengthen the nation's nuclear energy infrastructure and nuclear legislative framework in order to achieve these goals. Additionally, the Kingdom has been attempting to reach various levels of civil nuclear cooperation agreements with a number of other foreign governments. One of the key prospective partners in this collaboration is the United States (US). However there are significant challenges and concerns in the US-Saudi Arabia nuclear cooperation negotiations.

The aim of this study is to determine why the two countries were unable to reach an agreement on "nuclear cooperation" (also known as the "123 Agreement"). In order to assess challenges and concerns with regard to US-Saudi nuclear cooperation, the study first provides a short overview on the national atomic energy project launched by Saudi Arabia. Then, it focuses on the US provisions to conclude 123 agreements with other states aimed at establishing legal framework for peaceful nuclear cooperation while preventing nuclear weapons proliferation. From this point on, it concentrates on the US-Saudi nuclear negotiations, as well as areas of challenges and concerns including the Saudis resistance to the US "gold standard", to ratify the International Atomic Energy Agency's (IAEA) "Additional Protocol" (AP), possible Saudi development of a clandestine nuclear weapons program, risk of proliferation in the Middle East and regional nuclear security threats.

1. SAUDI ARABIA'S NUCLEAR PROGRAM: A SHORT HISTORY

Saudi government has a longstanding interest in civilian nuclear technology in order to increase the usage of non-fossil fuel based energy in the country and diversify its economy. The country went into a multi-year Technical Cooperation Project with the IAEA titled "Nuclear Energy Planning" as early as 1978 (Ahmad and Ramana, 2014: 682-694). However concrete Saudi efforts for the inclusion of nuclear power in the country's energy portfolio have begun in 2009 when the Saudi government announced that it was considering having its own nuclear program (World Nuclear Association). In a Royal Decree issued in April 2010, the King Abdullah City Centre for Atomic and Renewable Energy (KACARE) was established in the capital Riyadh. According to the Royal Decree the development of atomic energy is critical to meeting the country's expanding energy needs to generate power and desalinate water while reducing reliance on diminishing petroleum resources (Kingdom of Saudi Arabia, 2010). The Kingdom's nuclear energy prospects became clearer in June 2011 when Abdul Ghani bin Melaibari, a coordinator at KAGARE made a declaration regarding the nuclear energy targets of the Kingdom. Speaking at the Gulf Environment Forum, he announced that 16 nuclear reactors will be built over a 20-year period, and that they would eventually supply 20% of the country's electrical needs. That plan was postponed to 2040 in 2015 (Castelli, 2023; World Nuclear News, 2011).

In April 2016, Saudi Arabia announced a government program titled "Vision 2030" which aims to diversify energy production in Saudi Arabia. Furthermore, an official document titled "Vision 30: National Policy for the Atomic Energy Program of the Kingdom of Saudi Arabia" which is submitted to the UN, made an emphasis on the international legal framework regarding peaceful use of nuclear energy and stated that the Kingdom's Atomic Energy Program has a major aim to "limit all nuclear development activities to peaceful purposes within the limits of legislations and international treaties and conventions" (UNODC: 5). Following the submission of this comprehensive document regarding the Kingdom's national policy on nuclear energy program, in 2017, Saudi National Atomic Energy Project (SNAEP) was launched under the roof of KACARE. According to SNAEP web site nuclear energy will "play a major role" in reducing the nation's rising fossil fuel consumption and diversifying the nation's economy (KAGARE).

It can be observed that Saudi Arabia set important goals for working toward nuclear fuel production inside the SNAEP framework. The project's web page emphasizes that uranium plays a very important place in the nuclear fuel cycle in the peaceful use of nuclear energy and that the uranium reserves located on Saudi soil can be used in the production of fuel for nuclear reactors in the future (KAGARE). The Saudis took a further step by an official statement at the Ministry level. In December 2017, Saudi Energy Minister Khalid A. Al-Falih said they were seriously considering developing their own enrichment capabilities (Gamal and Paul, 2017). The minister further stressed that his country has uranium reserves and the Kingdom's nuclear energy program will require nuclear fuel which would set the ground for improving a domestic enrichment capacity (Einhorn, 2018). It is evaluated that Saudi Arabia intends to mine uranium as part of its nuclear program, which it sees as another step toward self-sufficiency in nuclear fuel production. According to preliminary assessments, Saudi Arabia has an estimated 60,000 to 90,000 tons of uranium (UNIDIR, 2023: 14). Another significant government announcement was recently issued in January 2023 when a Saudi minister stated that the Kingdom intends to exploit its own uranium resources to produce low-enriched uranium for nuclear fuel. According to him, this would entail "the entire nuclear fuel cycle, which includes the production of yellowcake, low enriched uranium, and the manufacturing of nuclear fuel" (Reuters, 2023). Because uranium enrichment, depending on the level of enrichment, is a critical phase for both nuclear energy and nuclear weapon manufacture, Minister's remarks drew major worldwide attention.

Another critical step in the Kingdom's nuclear energy development was the establishment of the Nuclear and Radiological Regulatory Commission (NRRC) in 2018. One year later, an expert team of the IAEA paid a visit to the Kingdom in order to evaluate the country's current nuclear infrastructure status and future development requirements. In its 2019 Integrated Nuclear Infrastructure Review (INIR) report on Saudi Arabia's nuclear program, IAEA stated that Saudi Arabia has made a significant step forward in "establishing a legal framework and developing nuclear infrastructure" (IAEA, 2019). The report also stated that Saudi Arabia has also formed "strategic alliances" with other governments that have substantial experience with

nuclear power and is heavily relying on their technical assistance. In order to take one step further in the light of the INIR report, the Kingdom established the Saudi Nuclear Energy Holding Company (SNEHC) in March 2022 which aims to develop and oversee proposed nuclear projects. In two-month time, Saudi officials invited "technical bids" for the construction of two 1.4 gigawatt electric reactors" in May 2022 (The US Congressional Research Service, 2023: 1).

It is clear that, concluding nuclear cooperation agreements with foreign governments is crucial for the Kingdom in order to advance its nuclear energy program. To this end, Saudi Arabia has concluded nuclear cooperation agreements with France in February 2011, Argentina in June 2011, South Korea in November 2011, China in January 2012, Russia in 2015, Hungary in October 2015, Kazakhstan in October 2016 and Jordan in March 2017 (World Nuclear Association). Recently, in June 2023, Saudi Foreign Minister stated that they would like use the greatest technology available in their nuclear energy program and they would greatly prefer to be able to include the US as "one of the bidders for its program". For this, the two countries should conclude a cooperation agreement. He mentioned that there are differences of view in the bilateral negotiations with the US, so they are trying to find a way to cooperate on civilian nuclear technology and to "move forward on that program" (The US Congressional Research Service, 2023: 2). As the Minister put, due to several challenges and concerns the US and Saudi Arabia have not made any significant advancement with regards to a 123 agreement.

2. CHALLENGING ISSUES AND CONCERNS IN THE NUCLEAR NEGOTIATIONS WITH THE US[3]

In order to understand and assess the challenges and concerns in the US-Saudi nuclear negotiations, firstly the US requirements for concluding a nuclear cooperation agreement with other countries should be examined. Then nuclear cooperation negotiations between the two countries in the light of these and additional requirements should be monitored.

2.1. The US Atomic Energy Act of 1954 and 123 Agreements

According to the US Nuclear Regulatory Commission, nuclear cooperation entails "the transfer of certain US-origin nuclear material subject to licensing for commercial, medical, and industrial purposes; the export of reactors and critical reactor components; and other commodities" (The US Congressional Research Service, 2023: 2; Arms Control Association, 2019). Section 123 of the US Atomic Energy Act (AEA) of 1954 details the process for a cooperation agreement enabling US civilian exports of substantial nuclear material and equipment (AEA, 1954; The US Department of State (DOS), 2022). It is stated in the National Nuclear Security Administration website that, on the one hand 123 Agreements provides benefits of peaceful uses of the US nuclear energy, science, and technology for the US partners; on the other hand

[3] Some of the author's points of view in this section of the study are discussed in an M5 Journal article, which is cited throughout the text as Pekar, 2019.

they support US nonproliferation ideals, working in tandem with other nonproliferation instruments (DOE, 2022). The key conditions imposing obligations on the other party in the 123 Agreements are as follows: a) to place US-supplied nuclear material and equipment under full-scope IAEA safeguards; b) not to engage in research and development activities for military applications with nuclear material, equipment and technology; c) not to transfer such material, technology and information without the consent of the US; d) to obtain the consent of the US to enrich or reprocess nuclear material provided to them by the US or produced by US-supplied nuclear reactors (AEA, 1954, Pekar, 2019: 89-90). According to section 123, nine nonproliferation requirements must be satisfied before an agreement can be signed. These conditions are detailed in Table 1 below.

Table 1. Conditions for Nuclear Cooperation Found in Section 123 of the Atomic Energy Act of 1954

Condition	Description
IAEA safeguards as a condition of supply to non-nuclear weapons states	In the case of non-nuclear-weapon states, continued U.S. nuclear supply is to be conditioned on the maintenance of IAEA safeguards over all nuclear materials in all peaceful nuclear activities within the territory, under the jurisdiction, or subject to the control of the cooperating party.
Other agreement-specific safeguards	Safeguards, as agreed to by the parties to the agreement, are to be maintained over all nuclear material and equipment transferred, and all special nuclear material used in or produced through the use of such nuclear material and equipment, as long as the material or equipment remains under the jurisdiction or control of the cooperating party, irrespective of the duration of other provisions in the agreement or whether the agreement is terminated or suspended for any reason.
Peaceful use guarantee	The cooperating party must guarantee that it will not use the transferred nuclear materials, equipment, or sensitive nuclear technology, or any special nuclear material produced through the use of such, for any nuclear explosive device, for research on or development of any nuclear explosive device, or for any other military purpose.
Right to require return	An agreement with a non-nuclear weapon state must stipulate that the United States has the right to require the return of any transferred nuclear materials and equipment, and any special nuclear material produced through the use thereof, if the cooperating party detonates a nuclear explosive device, or terminates or abrogates an agreement providing for IAEA safeguards.
Physical security	The cooperating party must guarantee that it will maintain adequate physical security for transferred nuclear material and any special nuclear material used in or produced through the use of any material, or production or utilization facilities[a] transferred pursuant to the agreement.
Retransfer rights	The cooperating party must guarantee that it will not transfer any material, Restricted Data[b] or any production or utilization facility transferred pursuant to the agreement, or any special nuclear material subsequently produced through the use of any such transferred material, or facilities, to unauthorized persons or beyond its jurisdiction or control, without the consent of the United States.
Restrictions on enrichment or reprocessing of U.S.-obligated material	The cooperating party must guarantee that no material transferred, or used in, or produced through the use of transferred material or production or utilization facilities, will be reprocessed or enriched, or with respect to plutonium, uranium-233, highly enriched uranium (HEU), or irradiated nuclear materials, otherwise altered in form or content without the prior approval of the United States.
Storage facility approval	The cooperating party must guarantee not to store any plutonium, uranium-233, or HEU that was transferred pursuant to a cooperation agreement, or recovered from any source or special nuclear material transferred, or from any source[c] or special nuclear material used in a production facility or utilization facility transferred pursuant to the cooperation agreement, in a facility that has not been approved in advance by the United States.
Additional restrictions	The cooperating party must guarantee that any special nuclear material, production facility, or utilization facility produced or constructed under the jurisdiction of the cooperating party by or through the use of transferred sensitive nuclear technology, will be subject to all the requirements listed above.

Source: (GAO, 2020: 17)

It is seen that, regarding restrictions on enrichment and reprocessing "a prior approval of the US" is needed before "enriching or reprocessing transferred nuclear material or nuclear material produced with materials or facilities transferred pursuant to the agreement" (Kerr and Nikitin, 2022: 2). Thus, it can be said that conditions in Section 123 of the US Atomic Energy Act do not require governments to forgo enrichment and reprocessing. On the other hand, a 123 agreement alone does not allow countries to enrich or reprocess nuclear material obtained from the US, and such authority

requires a separate negotiated agreement. As it will be discussed in the next section, although the US Atomic Energy Act does not include such a requirement to renounce pursuing enrichment and reprocessing technologies and capabilities, United Arab Emirates (UAE) in 2009 and Taiwan in 2013 voluntarily did so. Furthermore, Section 123 of the US Atomic Energy Act does not include the signing of an Additional Protocol with the IAEA as a prerequisite for concluding a nuclear cooperation agreement with the US.

2.2. The US-Saudi Nuclear Negotiations

There are ongoing negotiations between the US and Saudi Arabia to reach an agreement in the framework of Section 123 of the US Atomic Energy Act. As an initial step, in May 2008, the US and Saudi Arabia concluded a memorandum of understanding (MOU) on nuclear energy cooperation. In this memorandum, the Saudis emphasized their intention to rely on existing global markets for nuclear fuel services rather than pursuing enrichment and reprocessing activities (DOE, 2008). It should be noted that, MOU between the two countries is not a binding document and just constitutes the basis of a low-level cooperation among them. Following this first formal interaction regarding a possible nuclear energy cooperation, in October 2009, an agreement on "science and technology cooperation" between the US and Saudi Arabia came into force (DOS, 2009). Furthermore, other important MOU texts have been adopted as a result of intensive negotiations. In March 2015, a MOU between the US Department of Energy (DOE) and KACARE on "renewable energy and nuclear energy" became effective (DOE, 2015). Recently in 2022, officials from the US and Saudi Arabia concluded a MOU on "the exchange of technical information and cooperation in nuclear safety matters" (DOS, 2022). It is obvious that several agreements in significant fields have been finalized by the two countries. However, the US and Saudi Arabia have yet to reach an agreement under the 123 Agreement.

According to the US Government Accountability Office report, during the first formal nuclear negotiations towards finalizing a 123 Agreement in 2012, the US officials presented Saudi authorities with a "draft agreement text" that included nine nonproliferation requirements (GAO, 2020). It is stated by the National Nuclear Security Administration (NNSA) officials that Saudis have agreed to "the vast majority" of these conditions in this draft text, but certain concerns remained to be resolved. However, these remaining points were not resolved during the subsequent formal negotiations in 2018, and no amendments to the agreement's language were made at that time. These areas of disagreement include US's further demands for restricting enrichment and reprocessing activities of the Kingdom and requirement to bring into force the IAEA's Additional Protocol (GAO, 2020: 17). These two concrete issues can be regarded as the major reasons led to a deadlock in the nuclear cooperation negotiations between the two countries.

2.3. The Gold Standard: Restriction on Enrichment and Reprocessing Activities

As noted, although the terms of 123 agreements do not require recipient nations to forgo enrichment or reprocessing, some of these agreements do contain requirements covering these activities. For instance as it is stated in the 123 agreement between the US and UAE in 2009, the US has the right to cease nuclear cooperation with the UAE if it "possesses sensitive nuclear facilities within its territory or otherwise engages in activities within its territory relating to uranium enrichment or reprocessing of nuclear fuel" (DOS, 2019; The US Government Printing Office, 2009). This further non-proliferation legal commitment is called “gold standard” meaning that countries have undertaken not to engage in future enrichment and reprocessing activities with nuclear materials supplied to them or already held by them, not only by the US, but also by other countries (Jones, 2021). It is mostly evaluated by the experts that, the US sees this 123 Agreement as a “potential model” for its future 123 agreements (Kerr and Nikitin, 2022:17). That means the US has aimed to include the “gold standard” as a stricter nonproliferation precondition for concluding a 123 agreement with other countries (Varnum, 2012, Einhorn, 2018; Gilinsky and Sokolski 2019).

The desire of the Saudis to have nuclear fuel cycle alternatives, particularly for enrichment, is viewed as the most significant issue in the negotiations. They have insisted that they will not give up this right although they are still interested in US nuclear technology, but they have not changed their stance in their negotiations with the US (Nephew, 2020: 18). In this context, the US pronouncements are critical in understanding their position on this topic. In his testimony before the Senate Committee on Foreign Relations in 2018, the US Secretary of State stated that Saudis had expressed a desire for a peaceful nuclear energy program, and in return, the US demanded a gold standard from them to prevent them from enriching (GAO, 2020: 34). This move can be interpreted as the US’s insistence on the “gold standard” condition simply because nuclear reactor fuel can be created through enrichment, and highly enriched uranium or separated plutonium for nuclear weapons can be created through enrichment and reprocessing, respectively.

There is continuous discussion in the US at various levels about whether or not to insist on the "gold standard" in nuclear talks with Saudi Arabia. Some experts suggest that the United States should not insist on this criterion in order to enter Saudi Arabia's nuclear market for economic and geostrategic reasons (Miller, 2017; Miller and Volpe, 2018). Others, particularly those concerned about the prospect of nuclear weapons proliferation in the Middle East, argue that the "gold standard" should be maintained, while those opposed to a possible 123 agreement with Saudi Arabia argue that no nuclear deal should be reached with the country (Tubb, 2018). According to experts in this view, the reason the Saudis are looking for nuclear energy is the connection of this technology with nuclear weapons (Gilinsky, 2019). Moreover, a representative of the State Department previously stated that because of their potential technical relevance to the creation of fissile materials, the US has long attempted to restrict the global proliferation of uranium enrichment and spent fuel reprocessing

technology. The administration is nonetheless dedicated to the long-standing US nonproliferation goal, as President Biden has made clear (Al Arabiya English, 2023). Additionally, the US Congress has taken a stance in favor of this decision. Since 2020, Congress has made it illegal to utilize allocated funds to assist nuclear exports to Saudi Arabia through the Export-Import Bank unless the country has an "in effect" 123 agreement including the provisions to give up uranium enrichment and reprocessing on its soil (The US Congressional Research Service 2023: 3). However, the Saudis appear to be enthusiastic about enrichment and reprocessing activities on their territory. In this regard, according to a Foreign Policy article dated June 2023, Saudis recently proposed creating a "nuclear Aramco" which is a joint US- Saudi initiative to develop Saudi civilian nuclear program. According to the Saudi proposal, "nuclear Aramco" would give US corporations and individuals a direct involvement in the development and supervision of nuclear power development in Saudi Arabia while Saudi Arabia engage in uranium enrichment activities (Miller and Simon, 2023; Henderson, Schenker, 2023).

The topic of the “gold standard” during talks with Saudi Arabia received special attention during the Trump administration period due to reports regarding Trump's alleged efforts to transfer sensitive nuclear technology to Saudis without insisting on the “gold standard” (Taheran, 2019a; Pekar, 2019: 92-93). In February 2019, a 24 page- report, based on information from anonymous sources inside the White House and prepared by the US House of Representatives Monitoring and Reform Committee, contained secret and important details about the nuclear cooperation talks between the US and Saudi Arabia including Trump administration’s efforts to transfer sensitive nuclear technology to Saudis (Figliuzzi, 2020; Pekar, 2019: 92-93). The report states that Trump administration undertook “unethical and potentially illegal” actions” in regard to the transfer of sensitive nuclear technology to Saudi Arabia (Taheran, 2019a; Fandos and Mazzetti, 2019). The report also said that “the presence of strong commercial interests within the US puts pressure on Saudi Arabia to transfer highly sensitive nuclear technology” which could pose a “potential risk to the national security” of the US in the absence of adequate security controls (Fandos and Mazzetti, 2019).[4]

Aside from the "gold standard" issue, another important hurdle to a US-Saudi 123 agreement is the US demand that Saudi Arabia strengthen its safeguards agreement with the IAEA through an Additional Protocol.

2.4. The Additional Protocol

The Model Additional Protocol (AP) is a product of intensive efforts of the IAEA following the revelation of the clandestine Iraqi nuclear program as a result of IAEA’s inspections in the aftermath of the First Gulf War in 1991. International negotiations has been carried out at the IAEA level with the aim of developing the Agency’s full-

[4] For further information on the Trump Administration’s private negotiations with the Saudi Arabia and the report of the US House of Representatives Monitoring and Reform Committee, see Gardner, 2019; Pekar, 2019, Taheran, 2019b.

scope safeguards system and in 1997, the Model Additional Protocol (INFCRC/540), which could make a great contribution to this system, was accepted by the IAEA Board of Governors. The Model Additional Protocol as the "most significant revision of the Agency's safeguard system" aims to provide further inspection authority to the Agency compared with full-scope safeguards and the adoption of it is voluntary in nature (Rockwood, 2002: 123). With the Additional Protocol, on the one hand, the Agency was provided with additional powers for the inspections it would carry out, and on the other hand, it obliged states to provide more detailed information about the nuclear materials and equipment they possess and the nuclear program activities they carry out. In this context, IAEA inspectors are granted "complementary access" authority in order to confirm the "correctness" and "completeness" of the information submitted to the Agency by the states (Pekar, 2021: 388-389). That means "IAEA has the right and obligation under such agreements to verify not only that State declarations of nuclear material subject to safeguards are "correct", but that they are also "complete" (Rockwood, 2013: 19)

Saudi Arabia has a full-scope safeguards agreement with the IAEA since 2009, but has not concluded an Additional Protocol yet. It is emphasized by the experts that Saudi Arabia is not required to report any uranium mining or milling operations under its present safeguards commitments. Furthermore, Saudi Arabia may build fuel cycle facilities, such as those for conversion or enrichment, without notifying the IAEA until nuclear material is put into these facilities (Stewart and others, 2020: 8). Saudis were asked to sign an Additional Protocol with the IAEA in a letter sent in September 2019 from the US Secretary of Energy addressed to the Saudi Minister of Energy, Industry, and Mineral Resources. In the same letter, the Secretary also stated that any agreement including nuclear cooperation must require Saudi Arabia to sign the Additional Protocol with the IAEA and forgo enrichment and reprocessing for the duration of the agreement (GAO, 2020: 16). As it is mentioned, the US insistence on the adoption of Additional Protocol to conclude a 123 Agreement with foreign governments also goes back to the negotiation process of the US-UAE 123 agreement. It can be said that, this further requirement has a direct link with the US global non-proliferation efforts. Some experts, speaking of the threat of nuclear proliferation in the Middle East in particular, pointed out that the US should insist on the gold standard and Additional Protocol (Nakhle, 2016; Malin, 2017). But there are other views emphasizing that this move could lead Saudi Arabia into cooperation with countries with lower standards in preventing nuclear proliferation (Gheorghe, 2019: 124-125, Nasr, 2018). It is put by the well-respected Center for Nonproliferation Studies (CNS) experts that, Saudi Arabia is working "to establish an indigenous nuclear fuel cycle" and Chinese businesses have aided the Kingdom at least in uranium prospecting and already participating in various aspects of the Kingdom's nuclear program, such as advanced reactor design (Stewart and others, 2020: 14).

2.5. International Concerns Regarding the Saudi Nuclear Program

Apart from above mentioned challenges there are significant concerns both on the international level and among the US officials regarding the Saudi nuclear program and finalizing a 123 agreement with the Saudis (The US Congressional Research Service, 2023: 14-16, Burkhard et. al., 2017). These concerns include; a) possible

clandestine intentions of Saudi Arabia to develop a nuclear weapon, b) possibility that a US-Saudi nuclear cooperation agreement would help Saudi nuclear proliferation by providing nuclear infrastructure and knowledge, c) regional and international nonproliferation implications that a 123 agreement with Saudi Arabia would bring and nuclear security issues.

First and foremost, Saudi Arabia's unequivocal declarations about following Iran's lead if it chooses to build nuclear weapons raise serious international concerns. Clearly in the light of the Saudi's response to the Iran nuclear program in the region, Saudi Arabia's intentions in nuclear energy were questioned more intensively. In 2018, Prince Mohammed bin Salman said in a statement that "if Tehran chooses to have nuclear weapons in the event of the collapse of the Joint Comprehensive Plan of Action (JCPOA) concluded in March 2018, they will do the same" (Wintour, 2018, Pekar, 2019). These statements bring the question whether the Kingdom is willing to developing nuclear weapons or not. It is known that, enrichment level issue was at the heart of the JCPOA negotiations among P5+1 countries (namely China, France, Russia, the United Kingdom, and the United States; plus Germany). According to the deal enrichment level was capped at 3.67% which is an acceptable level for nuclear energy production but not an enough one for nuclear bomb production. Furthermore, Saudi Energy Minister Prince Abd al Aziz bin Salman Al Saud stated in 2019 that even if Saudis "scale up" they want to get to the full cycle including uranium production and enrichment (The US Congressional Research Service, 2023: 1). Experts also state that nuclear fuel cycle independence in the Kingdom must also be viewed as a matter of prestige, with the goal of increasing the regime's internal legitimacy and projecting authority externally (Castelli, 2023; Jones, 2021: 13). According to a 2018 Washington Post article, the reactors are a matter of "international prestige and power" for Saudi Arabia's Crown Prince Mohammed bin Salman, a step toward matching Shia adversary Iran's nuclear program while quenching some of the Kingdom's domestic hunger for energy (Mufson, 2018). Furthermore, following the President Trump's announcement regarding the US withdrawal from the JCPOA, Saudi Arabia stated their strong support and welcomed the US President's decision (The Embassy of the Kingdom of Saudi Arabia, 2018; Pekar, 2019). Making reference to the Iranian rights under the JCPOA, Saudi Royal Prince Turki al-Faisal, said in a statement that Saudi Arabia should not give up its right to enrich uranium under the roof of its planned civilian nuclear program because "it's a sovereign issue". He added that "if you look at the agreement between the P5+1 with Iran specifically it allows Iran to enrich" (Gamal and Paul, 2017).

Secondly, nuclear cooperation also carries the risk of giving Saudi Arabia the resources and know-how which are necessary to develop its own nuclear weapons program. Furthermore, it is unclear if the US can enforce the provisions of an agreement if they are broken. In this regard, there is risk that Saudi Arabia's nuclear program will not be constrained by the section 123 requirements of a nuclear cooperation agreement with the US if Saudi Arabia obtains reactors from other suppliers, as those requirements only apply to US-obligated material.

Thirdly, there are concerns about the adherence of nonproliferation norms and

regional proliferation risks that a 123 agreement would bring. A deal without constraints on enrichment and reprocessing with Saudis would trigger the UAE to request renegotiation of its 123 agreement with the US. That is because a provision of the US-UAE 123 agreement includes a provision that no other Middle Eastern country will be given preferential treatment over the UAE. That means if another government in the region agrees a less stringent arrangement with the US, the UAE has the right to request renegotiation of the treaty. Under these provisions, it is clear that a deal without constraints on enrichment and reprocessing could lead the UAE to renegotiate its 123 Agreement. Moreover, there is a concern that a 123 agreement without additional nonproliferation criteria (foregoing enrichment and reprocessing activities and adherence of Additional Protocol) would undermine the US and global nonproliferation standards by implying that such norms were negotiable. As Ian Stewart (and others) suggests, Saudi moves can be interpreted as a longer-term hedge against a nuclear-armed Iran. In this light, all countries should be concerned about insufficient safeguards on the Kingdom's nuclear program (2020: 4). Finally, there are several western analyses also point that there are also substantial security issues about the installation of nuclear power plants in a politically volatile region like Middle East. Nuclear power reactors are vulnerable to sabotage and become terrorist targets (Nakhle, 2016; Malin, 2017). According to a recent article in the Bulletin of Atomic Scientists, natural disasters, radiological terrorism, sabotage activities, and conventional attacks all demonstrate how dangerous the civilian nuclear industry in the Middle East can be (Saab and Kane, 2023). Furthermore, security risks from terrorist organizations and adversarial regional entities are noted by the US government. These threats include missile and rocket assaults on Saudi energy infrastructure and government institutions, which US officials attribute to Iran or organizations with Iran's support (The US Congressional Research Service, 2023).

CONCLUSION

Saudi Arabia has long been interested in nuclear technology. By adding nuclear energy to national energy portfolios Saudis on the one hand, aims to meet the increasing energy needs in the industrial and residential sectors, and on the other hand, to increase the country's oil exports by reducing its dependence on hydrocarbons. In view of recent advancements in Saudi nuclear energy, it is apparent that Saudi Arabia intends to pursue its nuclear energy program with the assistance of nuclear cooperation agreements. Aside from the agreements reached with others, the US is the Kingdom's most significant potential partner for nuclear cooperation. However, there is a legally binding framework in the US legislation regarding conclusion of the US's cooperation agreements with other countries. In line with the Section 123 of the US Atomic Energy Act of 1954 nuclear cooperation agreements with foreign governments include a number of provisions in order to prevent nuclear weapons proliferation. In order to engage into such an agreement with the US, a country must agree to a set of nine nonproliferation criteria. The US and Saudi Arabia are still negotiating to come to a settlement in compliance the Section 123 of the US Atomic Energy Act. However, there is debate over some additional obligations beyond the Act's framework.

Although the US Atomic Energy Act does not include such a requirement to renounce pursuing enrichment and reprocessing capabilities, and to implement the IAEA's Additional Protocol, some US partner countries did so in order to conclude a 123 Agreement. The US attempts to urge Saudis for the adherence of additional components namely the "gold standard" and the "Additional Protocol". It is evaluated in the study that although Saudis are highly interested in a 123 agreement with the US, nuclear cooperation between the two countries has remained at a low level due to these challenging issues. US pressure on Saudi Arabia to agree to forego the ability to produce nuclear fuel and to ratify the IAEA's Additional Protocol resulted in a stalemate in the negotiations. Furthermore there are concrete concerns at the national and international level regarding the possible negative consequences of a nuclear cooperation between the US and Saudi Arabia. These concerns include Saudi Arabia's possible covert intents to develop a nuclear weapon, the possibility that a US-Saudi 123 agreement would aid Saudi nuclear proliferation by providing nuclear infrastructure and knowledge, the regional and international nonproliferation implications of a 123 agreement with Saudi Arabia, and nuclear security issues. In this regard, it is also evaluated in the study that the US officials are deeply concerned about the Saudi nuclear program and the finalization of a nuclear cooperation deal with the Saudis. As it is evaluated in detail, due to these ongoing disagreements on the US's two additional non-proliferation conditions and other concerns, the US and Saudi Arabia were unable to reach a 123 agreement.

SUUDİ ARABİSTAN'IN NÜKLEER EDERJİ PROGRAMI: ABD-SUUDİ ARABİSTAN NÜKLEER İŞBİRLİĞİ MÜZAKERELERİNDEKİ ZORLUKLAR VE ENDİŞELER

1. GİRİŞ

Suudi Arabistan ülkenin artan enerji ihtiyacını fosil kaynaklara bağımlılığı azaltarak nükleer enerji ile karşılamayı hedeflemektedir. Bu bağlamda birçok ülke ile farklı türlerde sivil nükleer işbirliği anlaşmaları akdetmeye çalışmaktadır. Amerika Birleşik Devletleri (ABD), bu işbirliği için önemli potansiyel ülkelerden biridir. Ancak ABD ile Suudi Arabistan arasındaki nükleer işbirliği müzakerelerinde önemli zorluklar bulunmaktadır. Bu çalışma, Krallığın yürütmekte olduğu nükleer enerji programı çerçevesinde Amerika Birleşik Devletleri (ABD) ve Suudi Arabistan arasında yürütülen nükleer işbirliği müzakerelerinde ortaya çıkan zorlayıcı konulara odaklanmaktadır. Çalışma, iki ülkenin çeşitli zorlayıcı konular ve endişeler nedeniyle şimdiye kadar bir "nükleer işbirliği anlaşması" ("123 Anlaşması") sonuçlandırmada başarılı olamadığını ortaya koymaktadır.

2. SUUDİ ARABİSTAN'NIN NÜKLEER ENERJİ PROGRAMI

Suudi hükümeti, ülkede fosil yakıta dayalı olmayan enerji kullanımını artırmak ve ekonomisini çeşitlendirmek için sivil nükleer teknolojiye uzun süredir ilgi duymaktadır. 2011 yılında yapılan açıklamada hükümet 20 yıllık bir süre içinde 16 nükleer reaktör inşa edileceğini ve bu sayede ülkenin elektrik ihtiyacının %20'sini karşılayacağını duyurmuştur. Bu amaçla Suudiler bir yandan nükleer teknoloji ve

hukuk altyapılarını geliştirmeye hız verirken diğer yandan yabancı hükümetlerle nükleer işbirliği anlaşmaları sonuçlandırmaya başlamışlardır. Bu çerçevede Krallık, Şubat 2011'de Fransa, Haziran 2011'de Arjantin, Kasım 2011'de Güney Kore, Ocak 2012'de Çin, 2015'te Rusya, Ekim 2015'te Macaristan, Ekim 2016'da Kazakistan ve Mart 2017'de Ürdün ile nükleer işbirliği anlaşmaları imzalamıştır. ABD ile Suudi Arabistan arasındaki nükleer işbirliği müzakereleri ise devam etmektedir.

3. ABD İLE NÜKLEER MÜZAKERELERDE ORTAYA ÇIKAN ZORLAYICI KONULAR VE ENDİŞELER

3.1. 1954 Tarihli ABD Atom Enerjisi Kanunu ve 123 Anlaşmaları

ABD mevzuatında, ABD'nin diğer ülkelerle işbirliği anlaşmalarının akdedilmesine ilişkin yasal olarak bağlayıcı bir çerçeve vardır. 1954 tarihli ABD Atom Enerjisi Kanunun 123. Bölümüne uygun olarak, yabancı hükümetlerle yapılan nükleer işbirliği anlaşmaları, nükleer silahların yayılmasını önlemek için bir dizi hüküm içermektedir. ABD'nin diğer yabancı hükümetlerle nükleer işbirliği yapabilmesinin şartlarını ve süreci detaylandırmaktadır. En önemli koşullar şunlardır: a) ABD tarafından sağlanan nükleer malzeme ve ekipmanın tam kapsamlı IAEA güvenceleri altına alınması; b) nükleer malzeme, teçhizat ve teknoloji ile askeri uygulamalara yönelik araştırma ve geliştirme faaliyetlerinde bulunulmaması; c) bu tür malzeme, teknoloji ve bilgileri ABD'nin izni olmadan devredilmemesi ve d) ABD tarafından kendilerine sağlanan veya ABD tarafından tedarik edilen nükleer reaktörler tarafından üretilen nükleer materyali zenginleştirmek veya yeniden işlemek için ABD'nin onayını alınması.

3.2. ABD-Suudi Nükleer Müzakereleri

Mayıs 2008'de ABD ve Suudi Arabistan nükleer enerji işbirliği konusunda bir mutabakat zaptı (MOU) imzalamışlardır. Muhtemel bir nükleer enerji işbirliğine ilişkin bu ilk resmi etkileşimin ardından, Ekim 2009'da ABD ile Suudi Arabistan arasında "bilim ve teknoloji işbirliği" konulu bir anlaşma yürürlüğe girmiştir. 2012 yılına gelindiğinde bir 123 Anlaşmasını sonuçlandırmaya yönelik müzakereler sırasında ABD'li yetkililer, Suudi yetkililere silahların yayılmasının önlenmesi için dokuz şartı içeren bir "anlaşma taslağı metni" sunmuştur. Taslak metini büyük oranda kabul eden Suudiler, iki başlık konusunda çekince göstermişlerdir. Müzakerelerdeki zorlayıcı konular, ABD'nin Suudilerin zenginleştirme ve yeniden işleme faaliyetlerini kısıtlamasına yönelik ek talebi (altın standart) ve UAEA'nın Ek Protokolünün kabul edilmesini şart koşmasıdır.

3.3. Altın Standart: Zenginleştirme ve Yeniden İşleme Faaliyetlerini Kısıtlanması

ABD Atom Enerjisi Kanunun 123. Bölümü uyarınca ABD'nin işbirliği yaptığı ülkelerin zenginleştirme veya yeniden işleme kapasitelerinden vazgeçmeleri gerekmemektedir. Ancak, ABD'nin sonuçlandırdığı nükleer işbirliği anlaşmalarından bazıları (Birleşik Arap Emirlikleri ve Tayvan) zenginleştirme ve yeniden işleme girişimlerine yönelik böylesi hükümler içermektedir. Bu ilkeler tarafından altın

standardın kabulü, kendilerine yalnızca ABD tarafından değil, diğer ülkeler tarafından sağlanan veya halihazırda ellerinde bulunan nükleer malzemeleri gelecekte zenginleştirme ve yeniden işleme faaliyetlerinde kullanmayacaklarının taahhüdü anlamına gelmektedir. ABD'nin bu anlaşma şartlarını gelecekteki 123 anlaşmaları için "potansiyel bir model" olarak gördüğü uzmanlar tarafından değerlendirilmektedir. Suudi Arabistan ise zenginleştirme ve yeniden işleme haklarından vazgeçmek istememektedir.

3.4. Ek Protokol

Suudi Arabistan 2009 yılından beri UAEA kapsamlı güvenlik denetimleri altında olmasına rağmen henüz Ek Protokolü onaylamış değildir. Uzmanlar, Suudi Arabistan'ın mevcut güvenlik denetimleri hükümleri kapsamında, gizli bir şekilde, Ajansa bildirmeden zenginleştirme ve yeniden işleme faaliyetlerini de içerebilecek yakıt çevrimi tesisleri inşa edebileceğini vurgulamaktadırlar. ABD'li yetkililerce Suudilerden Ek Protokolü imzalamaları müzakereler esnasında defaten istenmiştir. 2018 tarihli ABD Enerji Bakanı imzalı mektupta Ek Protokolün kabul edilmesi ve iki ülke arasındaki nükleer işbirliği anlaşması süresince zenginleştirme ve yeniden işleme haklarından vazgeçmesinin anlaşmanın ön koşulu olduğu belirtilmiştir. Gelinen noktada, Suudiler Ek Protokolü kabul etmeye gönüllü görünmemektedirler.

3.5. Suudi Arabistan'ın Nükleer Programına İlişkin Uluslararası Kaygılar

Suudi Arabistan'ın, İran'ın nükleer silah geliştirmeyi seçmesi durumunda kendisinin de aynı yolu izleyeceğine dair net açıklamaları, uluslararası düzeyde önemli endişelere ve Suudilerin nükleer enerji programı geliştirme konusundaki niyetlerinin sorgulanmasına yol açmaktadır. Ayrıca, ABD ile gerçekleşecek nükleer işbirliğinin ve anlaşma hükümlerinin ihlal edilmesi ihtimalinin, Suudilerin nükleer silah geliştirmesinin önünü açıp açmayacağı tartışılmaktadır. Suudilerle zenginleştirme ve yeniden işleme kısıtlamalarının yer almadığı bir anlaşmaya gidilmesi durumunda ise, Birleşik Arap Emirlikleri'nin ABD ile yürürlükte olan 123 anlaşmasını yeniden müzakere etmek isteyeceği değerlendirilmektedir. Uzmanlara göre bu durum Orta Doğu'da nükleer silahların yayılması riskini beraberinde getirebilecektir. Son olarak, Orta Doğu gibi siyasi olarak değişken bir bölgede nükleer enerji santrallerin kurulmasıyla ilgili önemli nükleer emniyet sorunlarının var olabileceği değerlendirilmektedir.

SONUÇ

ABD ve Suudi Arabistan arasında yürütülen nükleer işbirliği müzakereleri, ortaya çıkan çeşitli zorlayıcı konular ve endişeler nedeniyle şimdiye kadar bir sonuca varamamıştır. ABD-Suudi nükleer işbirliği müzakerelerinde karşılaşılan başlıca zorlayıcı konular, ABD'nin Suudilerin zenginleştirme ve yeniden işleme faaliyetlerini kısıtlamak istemesi ve Uluslararası Atom Enerjisi Ajansı'nın Ek Protokolünün Suudilerce kabulünde ısrarcı olmasıdır. Bahsi geçen zorlukların yanı sıra, hem uluslararası düzeyde hem de ABD'li yetkililer arasında Suudi nükleer programı ve Suudilerle bir 123 anlaşmasının sonuçlandırılması konusunda önemli endişeler

bulunmaktadır. Bu endişeler, Suudi Arabistan'ın nükleer silah geliştirmeye yönelik olası gizli niyetlerini, ABD-Suudi nükleer işbirliği anlaşmasının nükleer altyapı ve bilgi sağlayarak Suudi nükleer silahların yayılmasına yardımcı olma olasılığını, Suudi Arabistan ile yapılacak bir 123 anlaşmasının getireceği bölgesel ve uluslararası nükleer yayılma risklerini ve olası nükleer emniyet tehditlerini içermektedir.

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	Yöntemi, ölçeği ve deseni tasarlamak / *Designing method, scale and pattern*	Çiğdem Pekar
Veri Toplama ve İşleme / *Data Collecting and Processing*	Verileri toplamak, düzenlenmek ve raporlamak / *Collecting, organizing and reporting data*	Çiğdem Pekar
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Literatür Taraması / *Literature Review*	Çalışma için gerekli literatürü taramak / *Review the literature required for the study*	Çiğdem Pekar